

What is claimed is:

1. A Pseudo-BJT based retinal focal-plane sensing system, which mimics the three cell functions of P cell, H cell and B cell in a single pixel, and performs image sensing effect, comprising:

5           a row decoder, used for detecting external images, randomly selecting desired pixel and generating a row address;

          a column decoder, used for detecting external images, randomly selecting desired pixel and generating a column address;

          a pixel array module, used for reading pixels and detecting external images;  
10   in addition, outputting pixel voltages appointed by the row decoder and the column decoder one by one; wherein a voltage is generated when an image signal is received by the row address and the column address;

          a data buffer, used for converting the parallel data to serial data in order to reduce output pins of the chip;

15           a circuit for current hysteresis, used for eliminating noise disturbance and adjusted adaptively according to the value of induced photocurrent, which enhances noise immunity and eliminate noise disturbance; and

          a resistance circuit, having the function of Low-Pass Filter enabling high frequency noise to be eliminated with high tunable capability.

20           2 · The Pseudo-BJT based retinal focal-plane sensing system of claim 1, wherein the P cell is to do photo-input sensing lacking the function of eliminating noise disturbance.

          3 · The Pseudo-BJT based retinal focal-plane sensing system of claim 1, wherein the H cell is to smooth an image retrieved by P cell with the Low-Pass Filter  
25   function enabling partial high frequent noise to be eliminated.

4 · The Pseudo-BJT based retinal focal-plane sensing system of claim 1,  
wherein the B cell is to balance both outputs of P cell and H cell to attain edge  
detection and have the function of eliminating noise disturbance.

5 · The Pseudo-BJT based retinal focal-plane sensing system of claim 1,  
5 wherein the Pixel Array Module can be a 32x32 pixel array.

6 · The Pseudo-BJT based retinal focal-plane sensing system of claim 1,  
wherein the retinal focal-plane sensor adopts MOSFET transistors.

7 · The Pseudo-BJT based retinal focal-plane sensing system of claim 1, being  
applied to image recognition, image tracing, robot vision, optical image detecting  
10 circuits of bar-code or character readers.

8 · The Pseudo-BJT based retinal focal-plane sensing system of claim 1,  
wherein the circuit for current hysteresis is an adaptive current Schmitt trigger.

9 · The Pseudo-BJT based retinal focal-plane sensing system of claim 1,  
wherein the resistance circuit is a smoothing network circuit.

15 10 · A Pseudo-BJT retinal focal-plane circuit, comprising  
a Photodiode D0, two Pseudo-BJTs, four adjustable N-channel MOS resistors of the  
smoothing network as Ms1- Ms4, a set of adaptive current Schmitt trigger  
comprising Mn1-Mnf2 and Mp1-Mpf2, an Inverter comprising transistors Mn and  
Mp, row and column controlled switch transistors, Pseudo-BJT P cells comprising  
20 Mp1 and Mp2, and Pseudo-BJT H cells comprising Mn1 and Mn2;  
wherein the Photodiode D0 is detected and photocurrent is then generated,  
incorporating Mp1 and MP2 for the P cell to process;

Mn1 and Mn2(H cell) are used for incorporating with smoothing network,  
Ms1-Ms4 to activate the image smoothing function; the electric resistance of four  
25 MOS resistors is controlled by the gate voltage Vsmooth(VF) with the Low-Pass

Filter function enabling partial high frequent noise to be eliminated;  
Mp2 and Mn2 have the connection between thereof activating the B cell  
functions; the adaptive current Schmitt trigger is composed of Mnf1-Mnf2  
and Mpf1-Mpf2 for eliminating noise disturbance;

5 an outputted Inverter converts analogue signals into digital signals; and  
the Row and Column controlled switch transistors are controlled by the Row  
and Column Decoders, thereby only appointed pixels are able to output  
signals (Retina\_out).

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